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The diagram illustrates a two-stage industrial process. Stage 1 on the left features a vertical column (2) with an inlet (1) and a bottom outlet (4) containing a U-shaped internal component. A side stream (3) exits the column, passes through a pump (19), a vertical vessel (18), and a line (17) back to the column. The main bottom stream (5) passes through a series of vertical vessels (13, 12) and a pump (11). Stage 2 on the right features a vertical column (9) with an inlet from the pump (11) and a bottom outlet (10) containing a U-shaped internal component. A side stream (6) exits the column, passes through a pump (8), a vertical vessel (6), and a line back to the column. The main bottom stream (11) passes through a pump (15), a vertical vessel (14), and an outlet (16). A top stream (20) exits the system from the top of the second column.

The present invention provides extractive distillation processes for removing difluoromethane (HFC-32) from a mixture comprising HFC-32 and at least one of chlorodifluoromethane (CFC-12), 1,1,1-trifluoroethane (HFC-143a), chloropentafluoroethane (CFC-115), and pentafluoroethane (HFC-125) using hydrocarbon, chlorocarbon, and oxygen-containing extractive agents.